

IN THE CLAIMS: The status of the pending claims follows:

1-56. (Cancelled)

57. (Currently amended): An apparatus ~~for forming submicroliter drops in an array microcrystallization to determine suitable crystallization conditions for a molecule, the apparatus comprising:~~

a platform on which a multiwell protein crystallization plate is positionable, each well of the protein crystallization plate comprising a well for housing mother liquor and a drop region that can be placed in vapor diffusion communication with the well;

a mother liquor drop station capable of removing mother liquor from a plurality of wells of the multiwell plate and delivering submicroliter volumes of mother liquor to the corresponding drop regions on the multiwell plate within a volume range of less than about 25 nL; and

a molecule drop station capable of delivering submicroliter volumes of a solution containing a molecule protein to be crystallized to the drop regions within a volume range of less than about 25 nL, the delivered mother liquor and the delivered solution containing a protein to be crystallized combining to form a sitting drop protein crystallization experiment having a total volume less than 1 μ L capable of forming protein crystals suitable for X-ray diffraction.

58. (Previously presented): The apparatus according to claim 57 wherein the mother liquor drop station and the molecule drop station are each capable of delivering submicroliter volumes within a volume range of less than about 20 nL.

59. (Previously presented): The apparatus according to claim 57 wherein the mother liquor drop station and the molecule drop station are each capable of delivering submicroliter volumes within a volume range of less than about 15 nL.

60. (Previously presented): The apparatus according to claim 57 wherein the mother liquor drop station and the molecule drop station each include a piezoelectric valve or a solenoid valve.

61. (Currently amended): An apparatus ~~for forming submicroliter hanging drops on cover slips used in an array microcrystallization to determine suitable crystallization conditions for a molecule, the apparatus comprising:~~

a platform on which a multiwell protein crystallization plate is positionable, each well of the protein crystallization plate comprising a well for housing mother liquor over which a coverslip comprising a hanging drop may be placed so that the hanging drop and mother liquor in the well are in vapor diffusion with each other;

a cover slip station on which a plurality of coverslips are positionable;

a mother liquor drop station capable of removing mother liquor from a plurality of wells of the multiwell plate and delivering submicroliter volumes of mother liquor from a plurality of to coverslips within a volume range of less than about 25 nL; and

a molecule drop station capable of delivering submicroliter volumes of a solution containing a molecule protein to be crystallized to the plurality of coverslips within a volume range of less than about 25 nL, the delivered mother liquor and the delivered solution containing a protein to be crystallized combining to form a vapor diffusion protein crystallization experiment having a total volume less than 1 μ L on the coverslip capable of forming protein crystals suitable for X-ray diffraction; and

a mechanism for placing the coverslips over the wells of the multiwell protein crystallization plate.

62. (Previously presented): The apparatus according to claim 61 wherein the mother liquor drop station and the molecule drop station are each capable of delivering submicroliter volumes within a volume range of less than about 20 nL.

63. (Previously presented): The apparatus according to claim 61 wherein the mother liquor drop station and the molecule drop station are each capable of delivering submicroliter volumes within a volume range of less than about 15 nL.

64. (Previously presented): The apparatus according to claim 61 wherein the

mother liquor drop station and the molecule drop station are each capable of delivering submicroliter volumes to at least four coverslips at a time.

65. (Previously presented): The apparatus according to claim 61 wherein the mother liquor drop station and the molecule drop station are each capable of delivering submicroliter volumes to at least eight coverslips at a time.

66-72. (Cancelled)

73-84. (Cancelled)